FLOW-RELATED FISH ENHANCEMENT IN THE SANTA YNEZ RIVER

Appendix B

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In August 1997, the National Marine Fisheries Service (NMFS) listed anadromous steelhead inhabiting the Southern California Evolutionarily Significant Unit (ESU), including the Santa Ynez River below Bradbury Dam, as an endangered species under the Federal Endangered Species Act. In response to this listing, the operations of the Cachuma Project (Project) were critically reviewed to identify and evaluate potential impacts on steelhead and instream habitats within the lower Santa Ynez River. Using scientific information collected through ongoing fisheries and water quality investigations, in combination with detailed analysis of historic hydrologic patterns and water project operations, modified project operations are proposed to protect steelhead and their habitat in the lower Santa Ynez River.

The U. S. Bureau of Reclamation (Reclamation) operates the Project to deliver water to the Project Member Units. Project operation includes storage and later release of water for downstream water rights as a condition of the Project's State Water Resources Control Board (SWRCB) permit. As a part of the proposed operations, some water within Lake Cachuma (Cachuma Reservoir) will be made available for the purpose of environmental protection and enhancement, including expansion of opportunities for successful passage, reproduction, and rearing of steelhead in the mainstem Santa Ynez River and Hilton Creek. Releases will maintain habitat in lower Hilton Creek, in the Santa Ynez River from Bradbury Dam to Highway 154, and in some years to Alisal Road.

The Conjunctive Use Working Group of the SYRTAC has developed water release measures. The recommendations are based upon an adaptive management strategy that will be able to respond to annual and seasonal variation in hydrologic conditions, water supply availability within the Santa Ynez River basin, and additional opportunities as they arise. The ultimate objective of the proposed actions is to promote the recovery of Santa Ynez River rainbow trout/steelhead consistent with water supply availability, project facilities, and competing demands for limited resources.

The flow-related management actions are designed to:

- protect and improve instream habitat within the mainstem Santa Ynez River;
- create opportunities for successful passage, reproduction and survival of anadromous steelhead trout; and
- avoid adverse effects on other aquatic or riparian biological resources.

The above actions have been developed in conjunction with the Project's need to (1) deliver water supplies, (2) provide for routine maintenance of existing facilities, and (3) maintain groundwater recharge requirements as set forth in water rights order WR 89-18 (downstream water rights).

Reaches of the mainstem and tributaries selected as having priority for habitat protection and improvement were identified based upon: (1) seasonal and annual instream flow patterns, (2) water temperature, and (3) quality and suitability of existing habitat. Priority habitats include Hilton Creek, the mainstem Santa Ynez River between Hilton Creek and the Highway 154 Bridge, the mainstem Santa Ynez River between Bradbury Dam and Hilton Creek and, in wet years and the year following a wet year, the mainstem down to Alisal Bridge (approximately 10.5 miles downstream of the dam).

Implementation of the proposed actions will benefit rainbow trout/steelhead both directly and indirectly by (1) increasing habitat availability and quality and (2) by improving access to good spawning and rearing habitat. The water release measures incorporated in the proposed operations to achieve these results include:

- Conjunctive use of reservoir releases and downstream water rights releases to meet mainstem rearing target flows. Conjunctive use will extend the period of time each year when instream flow improves habitat for steelhead rearing in Hilton Creek and the mainstem river. Modifications to reservoir operations will provide sustained target flows, via Hilton Creek and/or the mainstem Santa Ynez River, of 2.5 or 5 cubic feet per second (cfs) at the Highway 154 Bridge depending on reservoir elevation, or of 10 cfs at Highway 154 in years when the dam spills at least 20,000 acre-feet (AF). In addition, a target flow of 1.5 cfs will be established at Alisal Road in years when the reservoir spills at least 20,000 AF, and the year immediately following such a spill year, when steelhead are present. In critically dry years, when reservoir storage falls below 30,000 AF, periodic releases will be made to improve water quality in the mainstem pool habitat near Bradbury Dam. As a part of the proposed operation, water released for water rights will meet the mainstem target flows for part of the summer in many years. Conjunctive use of reservoir releases and water rights releases to meet rearing target flows will provide substantially more habitat below the dam in the critical late summer months than either current (Water Rights order 89-18 [WR 89-18]) or historic (no storage) conditions.

- Passage flow supplementation to increase the number and duration of passage opportunities in the mainstem Santa Ynez River. A dedicated volume of water will be made available in Lake Cachuma for the purpose of supplementing natural storm events. A Fish Passage Account will be created and allocated 3,200 AF of water in years when the reservoir surcharges to the proposed 3-foot level. The water will be released in subsequent years to increase the receding limb of natural storm hydrographs, thereby providing additional passage days for migrating steelhead.

- The creation of an Adaptive Management Account to provide additional, flow-related benefits to steelhead. The purpose of the Adaptive Management Account is to provide the management team with a dedicated volume of water (500 AF provided in years when the reservoir surcharges to the proposed 3-foot level) to be released based on

biological need. The water can be used for passage flow supplementation and/or additional habitat maintenance releases into the mainstem or Hilton Creek.

- Releases made through the Hilton Creek Supplemental Water Supply System (detailed in the Hilton Creek Technical Appendix). Releases made to support mainstem habitat (*i.e.*, target flows) will be made via the Hilton Creek system. The delivered water will meet specific temperature and dissolved oxygen criteria to benefit rainbow trout/steelhead. The watering system has been designed to take cool water from 60+ feet below the surface of Lake Cachuma and deliver this water to one or more of the following locations:

  (1) upper Hilton Creek release point near Reclamation property boundary, approximately 2,980 feet upstream of the Santa Ynez River;

  (2) lower Hilton Creek release point just above the chute pool, approximately 1,380 feet upstream of the river; and/or

  (3) the Stilling Basin (mainstem) release point below Bradbury Dam.

The 3-foot surcharge will support the flow-related enhancement actions summarized above: the reservoir releases for rearing target flows and the Passage and Adaptive Management accounts. It is anticipated that up to four years may be required to complete environmental review to implement the proposed 3-foot surcharge. Environmental review is already complete for an interim level surcharge of 1.8 feet. Modifications to the flashboards of the Bradbury Dam radial gates can be completed next year to allow the 1.8 foot surcharge and accommodate the 3-foot surcharge. Thus, interim rearing target flows and an interim allocation to the Fish Passage Account are included in the recommended actions.

The actions proposed here will provide opportunities for steelhead numbers in the Santa Ynez River to expand. The measures will provide a substantial net benefit compared to existing and historic conditions by increasing the amount of available habitat, increasing the quality of existing habitat, and by increasing the number of days that steelhead can migrate in the mainstem.